

WHAT IS CLAIMED IS:

1. A fiber optic connector for mounting to a cable having a plurality of optical fibers and connecting the optical fibers to mating fibers, wherein the optical fibers and the mating optical fibers have termini mounted to respective ends thereof, the fiber optic connector comprising:

a housing defining an exterior of said fiber optic connector;

a rear seal body disposed in a rearward portion of said housing, and having a tapered surface disposed therein;

a rear seal element sealingly engaging between the cable and said housing;

a recess which is interiorly disposed in a forward portion of said housing, said recess being open in a rearward direction for receiving the termini of the optical fibers;

a retainer ring having an edge periphery which defines a retainer profile having outward portions and inward portions, said inward portions defined for receiving termini of the optical fibers;

a support member having a shank which is disposed within said housing for extending between said rear seal body and said forward portion of said housing with a gap disposed between said housing and said shank through which the optical fibers extend, said shank extending forward of said rear seal body and being engaged with said retainer ring such that said retainer ring is disposed within said recess in said forward portion of said housing;

said recess disposed in said forward portion of said housing having an interiorly disposed periphery which defines a recess profile, said recess profile having inner portions which receive the termini of the optical fibers and outer portions for engaging said outward portions of said retainer ring.

2. The fiber optic connector according to Claim 1, further comprising:

said support member having a rearwardly disposed, tapered portion which tapers in a first direction along said longitudinal axis;

5 a retainer sleeve having a tapered surface, which tapers in a second direction which is opposite to said first direction, said retainer sleeve being secured within said rear seal body; and

wherein said support member is threadingly secured to said rear seal body, such that said tapered portion is pulled into said tapered surface to wedge a portion of said cable therebetween.

3. The fiber optic connector according to Claim 2, wherein a rearward portion of said support member has external threads and a forward section of said rear seal body has internal threads which are threadingly secured together to secure said support member to said rear seal body.

4. The fiber optic connector according to Claim 3, wherein said retainer sleeve is a separate component from said rear seal body, which is retained in said rear seal body by fitting within a socket defined within said rear seal body.

5. The fiber optic connector according to Claim 4, wherein said recess profile and said retainer profile are formed such that said retainer profile fits within said recess profile in a keyed arrangement, angularly aligning said insert with said retainer ring and said shank of said support member; and

5 said fiber optic connector further including electrical contacts for mounting to electrical conductors included in the cable and electrically connecting to mating contacts of a hybrid, electro-optic receptacle.

6. The fiber optic connector according to Claim 5, wherein said forward and said rearward portions of said housings comprises separate members which are threadingly secured together.

7. The fiber optic connector according to Claim 1, wherein said recess profile and said retainer profile are formed such that said retainer profile fits within said

recess profile in a keyed arrangement, angularly aligning said insert with said retainer ring and said shank of said support member.

8. The fiber optic connector according to Claim 1, further including electrical contacts for mounting to electrical conductors included in the cable and electrically connecting to mating contacts of a hybrid, electro-optic receptacle.

9. The fiber optic connector according to Claim 1, wherein said recess profile and said retainer profile are formed such that said retainer profile fits within said recess profile in a keyed arrangement, angularly aligning said insert with said retainer ring and said shank of said support member; and

said fiber optic connector further including electrical contacts for mounting to electrical conductors included in the cable and electrically connecting to mating contacts of a hybrid, electro-optic receptacle.

10. A fiber optic connector for mounting to a cable having a plurality of optical fibers and connecting the optical fibers to mating fibers, wherein the optical fibers and the mating optical fibers have termini mounted to respective ends thereof, the fiber optic connector comprising:

- a housing defining an exterior of said fiber optic connector;
- a rear seal body for securing within a rearward portion of said housing, said rear seal body mounted to the cable to for secure the cable to said housing;
- a rear seal element sealingly engaging between the cable and said housing;
- an insert disposed within a forward portion of said housing, said insert having a recess which defines an open, rearward facing end of said insert;
- a support member extending from said rear seal body into said recess defining said open, rearward facing end of said insert, said support member having a shank which extends between said insert and said rear seal body, said shank being centrally disposed within said housing with an annular-shaped gap extending between said shank of said support member and said housing;
- a retainer ring disposed on a forward end of said shank, said retainer ring having an edge periphery which defines a retainer profile having outward portions and inward portions, said inward portions defined for receiving termini of the optical fibers; and
- said recess of said insert having an interiorly disposed periphery which defines a recess profile, said recess profile having inner portions which receive the termini of the optical fibers and outer portions for engaging said outward portions of said retainer ring.

11. The fiber optic connector according to Claim 10, further comprising:
- said support member having a conically shaped, rearwardly disposed, tapered portion which tapers in a first direction along said longitudinal axis;
 - a retainer sleeve having a tapered surface, which tapers in a second direction which is opposite to said first direction, said retainer sleeve being secured within said rear seal body; and

wherein said support member is threadingly secured to said rear seal body, such that said tapered portion is pulled into said tapered surface to wedge a portion of said cable therebetween.

12. The fiber optic connector according to Claim 11, wherein a rearward portion of said support member has external threads and a forward section of said rear seal body has internal threads which are threadingly secured together to secure said support member to said rear seal body.

13. The fiber optic connector according to Claim 12, wherein said retainer sleeve is a separate component from said rear seal body, which is retained in said rear seal body by fitting within a socket defined within said rear seal body.

14. The fiber optic connector according to Claim 13, wherein said recess profile and said retainer profile are formed such that said retainer profile fits within said recess profile in a keyed arrangement, angularly aligning said insert with said retainer ring and said shank of said support member; and

said fiber optic connector further including electrical contacts for mounting to electrical conductors included in the cable and electrically connecting to mating contacts of a hybrid, electro-optic receptacle.

15. The fiber optic connector according to Claim 10, wherein said forward and rearward portions of said housing are separate members, which are threadingly secured together.

16. The fiber optic connector according to Claim 15, wherein said insert is integrally formed with said forward portion of said housing.

17. The fiber optic connector according to Claim 10, wherein said recess profile and said retainer profile are formed such that said retainer profile fits within said

recess profile in a keyed arrangement, angularly aligning said insert with said retainer ring and said shank of said support member.

18. The fiber optic connector according to Claim 10, further including electrical contacts for mounting to electrical conductors included in the cable and electrically connecting to mating contacts of a hybrid, electro-optic receptacle.

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19. A fiber optic connector for mounting to a cable having a plurality of optical fibers and connecting the optical fibers to mating fibers, wherein the optical fibers and the mating optical fibers have termini mounted to respective ends thereof, the fiber optic connector comprising:

5 a housing defining an exterior of said fiber optic connector;
a rear seal body for securing within a rearward portion of said housing,
said rear seal body mounted to the cable to for secure the cable to said housing;
a rear seal element sealingly engaging between the cable and said
housing;

10 an insert disposed within a forward portion of said housing, said insert
having a recess which defines an open, rearward facing end of said insert;

15 a support member extending from said rear seal body into said recess
defining said open, rearward facing end of said insert, said support member having a
shank which extends between said insert and said rear seal body, said shank being
centrally disposed within said housing with an annular-shaped gap extending between
said shank of said support member and said housing;

20 a retainer ring disposed on a forward end of said shank, said retainer ring
having an edge periphery which defines a retainer profile having outward portions and
inward portions, said inward portions defined for receiving termini of the optical fibers;

25 said recess of said insert having an interiorly disposed periphery which
defines a recess profile, said recess profile having inner portions which receive the
termini of the optical fibers and outer portions for engaging said outward portions of
said retainer ring;

wherein said recess profile and said retainer profile are formed such that
said retainer profile fits within said recess profile in a keyed arrangement, angularly
aligning said insert with said retainer ring and said shank of said support member;

said support member having a conically shaped, rearwardly disposed,
tapered portion which tapers in a first direction along said longitudinal axis;

30 a retainer sleeve having a tapered surface, which tapers in a second direction which is opposite to said first direction, said retainer sleeve being secured within said rear seal body;

35 wherein a rearward portion of said support member has external threads and a forward section of said rear seal body has internal threads which are threadingly secured together to secure said support member to said rear seal body, such that said first tapered portion is pulled into said tapered surface to wedge a portion of said cable therebetween; and

40 wherein said insert, said support member and at least a forward portion of said housing are formed of plastic, said insert and said support member being formed of a non-conductive plastic and said forward portion of said housing being formed of conductive plastic which is over-molded onto said insert.

20. The fiber optic connector according to Claim 19, further including electrical contacts for mounting to electrical conductors included in the cable and electrically connecting to mating contacts of a hybrid, electro-optic receptacle.